

ABSTRACT OF THE DISCLOSURE

Embodiments of the present invention relate to a low signal-to-noise ratio positioning system. According to one or more embodiments of the present invention, the receiver in a conventional positioning system is configured to communicate with a terrestrial broadcast station. The terrestrial broadcast station transmits assistance signals to the receiver and may be another receiver. The assistance signals enable the receiver to locate very weak signals being transmitted from the satellites in the positioning system. In one embodiment, the assistance signals include Doppler frequencies for the satellites. In another embodiment, the assistance signals include Ephemeris data. In another embodiment, the assistance signals include almanac data. In other embodiments of the present invention, the assistance signal includes navigation bits demodulated from the carrier phase inversion signal of the satellite, time synchronization signals, and pseudo range differential corrections.